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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,278	04/19/2001	Gennadi Finkelshtain	2405/3	7886

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EXAMINER

WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/837,278

Applicant(s)

FINKELSHTAIN ET AL.

Examiner

Monique M Wills

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,6,9-14,19-24,26-34 and 38-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,5,6,9-13,34 and 38 is/are allowed.
- 6) ☒ Claim(s) 14,19-24,26-33 and 39-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Response to Amendment*

This Office Action is responsive to the Amendment filed September 8, 2004.

The following rejections are overcome:

- Claims 1,3-6,9,14-35 & 36-37 under 35 U.S.C. 102(e) as being anticipated by Finkelshtain et al., U.S. Patent 6,554,877.
- Claims 1,3-8 under 35 U.S.C. 102(e) as being anticipated by Finkelshtain et al., U.S. Patent 2002/0076602.
- Claims 1,3,5,6,9-11 & 14-17 under 35 U.S.C. 102(e) as being anticipated by Inoue U.S. Patent 6,489,051.
- Claims 1 & 13 under 35 U.S.C. 102(b) as being anticipated by Allen et al. U.S. Patent 5,300,206.
- Claims 1 & 12 under 35 U.S.C. 102(b) as being anticipated by De 19544323, Published June 5, 1997.
- Claim 2 under 35 U.S.C. 103(a) as being obvious over Finkelshtain et al., U.S. Patent 6,554,877.

The following new ground rejection is necessitated by amendment:

- Claims 14, 19-21, 26-28, 42-43 & 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Landsman et al. U.S. Patent 5,480,735.
- Claims 22, 23 & 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735.

- Claims 39 & 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735 in view Kaneko et al., U.S. Pub. 2003/0054226.
- Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735.
- Claims 31-33 & 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735 in view Wilkinson et al. U.S. Pub. 2001/0041218.

Claims 1,3,5,6, 9-13, 34 & 38 are allowable.

*Allowable Subject Matter*

Claims 1,3,5,6 & 9-13 are allowable over the prior art of record, because the prior art is silent to an electrode comprising a catalytic layer interposed between a first and second diffusion control layer.

Claim 38 is allowable over the prior art of record, because the prior art is silent to a method of regulating power output comprising adjusting viscosity and permeability to regulate a rate of diffusion of fuel to the anode.

Claim 34 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The instant claim is allowable over the prior art of record, because the prior art is silent to a viscosity-controlling component for a fuel cell fuel comprising glycerine, ethylene glycol and polyethylene glycol.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 19-21, 24-28, 42-43 & 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Landsman et al. U.S. Patent 5,480,735.

With respect to claims 14, 42, 43 & 45, Furuya teaches a fuel composition contained within a fuel chamber (10, 11); b) an anode(1) having a catalytic layer (7) and a diffusion control layer (6), said diffusion control layer interposed between said fuel chamber (10) and said catalytic layer (7) and in contact with said catalytic layer; c) a cathode 2; and d) an matrix comprising a liquid KOH electrolyte (3) . See column 2, lines 60-68 & col. 3, lines 1-5.

With respect to claims 19 & 26, the electrolyte inherently has a pH above about 7. The limitation in claims 19 & 26, with respect to the electrolyte having a PH above 7 , is considered to be an inherent property of the electrolyte as set forth in the prior art, because Landsman employs the same KOH electrolyte set forth by Applicant. See column 6, lines 5-15. Additionally, “products of identical chemical composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ 2d 1655, 1658.

As to claims 20, 21 & 27-28, the electrolyte is KOH. See column 6, lines 5-15.

Art Unit: 1746

With respect to claim 24 & 45, the exhaust gases produced are inherently substantially soluble in the electrolyte, because Landsman employs the same KOH electrolyte set forth by Applicant. See column 6, lines 5-15.

Therefore, the instant claims are anticipated by Landsman.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22, 23 & 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735.

Landsman teaches a diffusion electrolyte as described in the 35 U.S.C. 102(b) rejection hereinabove.

Landsman is silent to the electrolyte concentration being about 3M to 12M.

However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ an electrolyte concentration of about 3M to 12M, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 39 & 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735 in view Kaneko et al., U.S. Pub. 2003/0054226.

Landsman teaches a diffusion electrolyte as described in the 35 U.S.C. 102(b) rejection hereinabove, wherein the catalyst is platinum and/or rhodium.

Landsman is silent to gold or nickel.

Kaneko teaches the equivalence of rhodium, gold and nickel as catalyst for diffusion electrodes.

Therefore, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Landsman does not teach gold or nickel catalyst, Kaneko teaches that gold, nickel and rhodium are art recognized equivalent materials for use as fuel cell catalyst, and therefore one having ordinary skill in the art would have substituted one fuel cell catalyst for the other.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art

Art Unit: 1746

are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735.

Landsman teaches a diffusion electrolyte as described in the 35 U.S.C. 102(b) rejection hereinabove.

Landsman is silent to a valve mechanism that selectively blocks and unblocks flow from the fuel chamber.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a valve mechanism that selectively blocks and unblocks flow from the fuel chamber, in order to obviate flooding at the anode.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 31-33 & 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landsman et al. U.S. Patent 5,480,735 in view Wilkinson et al. U.S. Pub. 2001/0041218.

Landsman teaches a diffusion electrolyte as described in the 35 U.S.C. 102(b) rejection hereinabove, including hydrogen fuel.

Landsman is silent to methanol fuel and a conductive mesh.



Wilkinson teaches a conductive mesh in order to provide enhanced stability to the diffusion layers (Par. 11). The reference also teaches the equivalence hydrogen and methanol for fuel cells (par. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the conductive mesh of Wilkinson in the diffusion electrode of Landsman, in order to enhance stability of the diffusion layer.

As to the employment of methanol, it would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Landsman does not teach methanol, Wilkinson teaches that methanol and hydrogen are art recognized equivalent materials for use as fuel cell fuels, and therefore one having ordinary skill in the art would have substituted one fuel for the other.

#### *Response to Arguments*

Applicant's arguments with respect to claims 1,3-6, 9-14, 19-24,26-34, 39-44 have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until

Art Unit: 1746

after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.


If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

11/29/04

  
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Application/Control Number: 09/837,278

Art Unit: 1746

Page 10